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| 10/802,663      | 03/17/2004  | Chia Kung            | 1330.019US1         | 2664             |

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| EXAMINER |
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DRODGE, JOSEPH W

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| ART UNIT | PAPER NUMBER |
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1797

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11/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/802,663

**Applicant(s)**

KUNG ET AL.

**Examiner**

Joseph W. Drodge

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 17-19 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Specification is deemed to not support claiming of the system as being both "tankless" and also containing a "reservoir" that is intermittently filled with permeate and then emptied of fluid. In a fluid handling system, terminology "tank" is synonymous with "reservoir". In fact claims 1 and 9 recite a "reservoir" which is synonymous with tank. Also pages 2 and 6 of the Specification recite one or more tanks at different locations of the instant system.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In each of claims 1 and 9, recitation in claim preambles of "tankless system" conflict with later recitation in the claims of a "reservoir". The term "tank" is synonymous with "reservoir".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,4,5 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ellis patent 4,629,568. For claims 1,9 and 16, Ellis discloses membrane module 10, inlet/feed line 12,

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concentrate outlet 14, permeate outlet 16, tap or faucet 28a, flush reservoir 24, and communication between reservoir and inlet when faucet is turned off (Abstract, column 7, line 61-column 8, line 12) since there is no flow of raw water into the system, flow to faucet 28a is inherently not occurring). For claims 2, 4 and 5, see check valves 26, 150 and 156 (that are "between" the flush reservoir and all parts of the membrane (inlet for feed and outlets for concentrate and permeate)).

*The system is configured such that permeate does not enter the flush reservoir while the faucet is turned on and does not enter the reservoir until after the faucet is turned off (see column 6, lines 49-52 "the permeate leaves...and assuming that the tap (or 'faucet') is closed, the permeate enters the storage tank by way of conduit 28". The phrase is interpreted to indicate that when the tap or faucet is open or "turned on" permeate does not enter the storage tank (flush reservoir).*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3,9,10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis patent 4,629,568 in view of Gramms et al patent 5,512,167. For claims 1,9 and 16, Ellis discloses membrane module 10, inlet/feed line 12, concentrate outlet 14, permeate outlet 16, tap or faucet 28a, flush reservoir 24, and communication between reservoir and inlet when faucet is turned off (Abstract, column 7, line 61-column 8, line 12 (since there is no flow of raw water into the system, flow to faucet 28a is inherently not occurring)). For claims 2, 4 and 5 and also for claims 12 and 14, see check valves 26, 150 and 156 (that are "between" the flush reservoir and all parts of the membrane (inlet for feed and outlets for concentrate and permeate)). For claim 8, there is no reservoir proximate the permeate line through the post-filter 62 to the faucet. For claims 3 and 9 and claims dependent therefrom, also see shut-off valve 20. The claims differ in requiring the system being operative to open the feed line based on pressure differential between feed line and permeate line. Gramms teaches a controller that flushes a membrane responsive to such transmembrane pressure. It would have been obvious to one of ordinary skill in the art to have modified the Ellis system by incorporating the controller and function of

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correlating flushing through the feed line responsive to pressure difference of Gramms, in order to optimize membrane operation by cleaning when and only when such cleaning is necessary and desirable.

For other dependent claims, for claim 10 the valve 20 of Ellis may be a non-electric type (column 7, lines 24-31), for claims 12-15 again see check valves 26, 150 and 156 of Ellis and relative position of flush reservoir not being in-line with flow to the faucet.

Claims 2, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis in view of Hart patent 6,110,360.

Claims 2,6 and 7 differ in requiring both a check valve between permeate outlet and faucet and 2<sup>nd</sup> check valve between permeate outlet and flush reservoir. However, Hart does teach such pair of check valves, including 1<sup>st</sup> check valve 108 proximate the permeate outlet of a reverse osmosis filter (which would be between the permeate outlet and flush reservoir in the Ellis system) and 2<sup>nd</sup> check valve 112 between permeate outlet and tap or faucet (figure 3A and column 11, lines 1-9). It would have been obvious to one of ordinary skill in the art to have utilized the check valves of Hart in the Ellis system, to maintain line pressure to both the tap or faucet and to the flush reservoir.

Claims 6 and 7 additionally differ in requiring a line or feed pressure of no more than about 75 psi. and reservoir volume being small, thus of 1 liter or less. Hart teaches to operate a system transporting reverse osmosis treated water to a faucet operating at a very low line pressure (column 6, lines 27-29) and designed to avoid wasting water, inherently having a relatively small storage tank or reservoir designed for small-scale household uses (column 6, lines 37-38 and column 11, lines 60-65). It would have been obvious to have adapted the Ellis

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system to one having relatively low line pressures and relatively small reservoir, as suggested by Ellis, to accommodate varied uses for small-scale household uses.

Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis in view of Gramms et al, as applied to claims 8-10 above, and further in view of Hart patent 6,110,360.

Claim 11 also differs in requiring a line or feed pressure of no more than about 75 psi. and reservoir volume being small, thus of 1 liter or less. Hart teaches to operate a system transporting reverse osmosis treated water to a faucet operating at a very low line pressure (column 6, lines 27-29) and designed to avoid wasting water, inherently having a relatively small storage tank or reservoir designed for small-scale household uses (column 6, lines 37-38 and column 11, lines 60-65). It would have been obvious to have adapted the Ellis system to one having relatively low line pressures and relatively small reservoir, as suggested by Ellis, to accommodate varied uses for small-scale household uses.

Claim 13 also differs in requiring both a check valve between permeate outlet and faucet and 2<sup>nd</sup> check valve between permeate outlet and flush reservoir. However, Hart does teach such pair of check valves, including 1<sup>st</sup> check valve 108 proximate the permeate outlet of a reverse osmosis filter (which would be between the permeate outlet and flush reservoir in the Ellis system) and 2<sup>nd</sup> check valve 112 between permeate outlet and tap or faucet (figure 3A and column 11, lines 1-9). It would have been obvious to one of ordinary skill in the art to have utilized the check valves of Hart in the Ellis system, to maintain line pressure to both the tap or faucet and to the flush reservoir.

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Applicant's arguments filed on 02 October 2007, concerning independent claims 1,9 and 16 have been fully considered but they are not persuasive.

It is argued that Ellis does not disclose a tank-less system in which the permeate comes directly from a reverse osmosis module without being dissipated in a storage tank and without being re-filtered before being delivered to a user. However, it is submitted that Ellis does not have a storage tank directly coupled between permeate outlet and user, in that at least a portion of flow can bypass storage tank en route to user delivery. Additionally, the instant claim language neither includes or precludes presence or absence of any additional post-filter or any other treatment structure between permeate and delivery to user.

It is argued that Ellis does not disclose the feature of preventing permeate from entering the flush reservoir until after the faucet is turned off. However, Ellis explicitly discloses such feature (*see column 6, lines 49-52 "the permeate leaves...and assuming that the tap (or 'faucet') is closed, the permeate enters the storage tank by way of conduit 28". The phrase is interpreted to indicate that when the tap or faucet is open or "turned on" permeate does not enter the storage tank (flush reservoir).*

**ALLOWABLE SUBJECT MATTER**

Claim 8 and claims 17-20 continue to distinguish in view of the recitation of the pressure ranges to which the automatic shut-off valve, first check valve and second check valve are responsive to.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Roy Sample, can be reached at 571-272-1376. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have any questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

JWD

/Joseph W. Drodge/  
Primary Examiner, Art Unit 1797

November 12, 2007